

Statement of Considerations

REQUEST BY PRAXAIR, INC.(PRAXAIR) FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS TO INVENTIONS MADE UNDER CONTRACT NO. DE-FC26-00NT41027 ENTITLED "NOVEL REACTOR FOR THE PRODUCTION OF SYNTHESIS GAS"; W(A)-01-005, CH1058.

Praxair has requested an advance waiver of domestic and foreign patent rights to inventions its employees may conceive or first actually reduce to practice in the performance of Contract No. DE-FC26-00NT41027.

As brought out in the attached waiver petition, the work will focus on development of an advanced technology for producing synthesis gas from a reaction of natural gas with pure methane. This process combines the use of a short-reaction time catalyst with Praxair's gas mixing technology to provide a novel reactor system. The total cost of this work under the contract is \$2,890,799.00 over a three year period with \$890,799.00 contributed by Praxair and \$2,000,000.00 by DOE. Praxair's cost share is 31%.

Referring to paragraph 4 and 5 of Praxair's waiver petition, Praxair has extensive experience in reaction engineering and commercialization. Praxair has commercialized the Advanced Gas Reactor, the Liquid Oxidation Reactor and the Direct injection Atmosphere System. Praxair owns and operates more than 20 facilities worldwide that produce over 470 MMscfd of H₂/CO/syngas. Praxair has annual sales in excess of \$4.6 billion dollars of industrial gas products and has approximately 14% of the global market for industrial gases.

As noted in paragraphs 6-8 of Praxair's waiver petition, Praxair is a major supplier of production gas systems. Praxair will utilize existing capital equipment and laboratories valued at more than one million dollars in the performance of this contract. Granting Praxair a patent waiver will provide Praxair with the incentive to assimilate this technology into its organization and expend the technical and commercial effort to develop products, systems, and applications that exploit the advantages of this technology.

Praxair has agreed to the terms of the usual advance patent waiver, including background patent rights, and background data licensing provisions. These advance patent

waiver provisions include a Government license, march-in rights and preference for U.S. industry provisions comparable to those set out in 35 U.S.C. 202-204, as well as a U.S. Competitiveness Clause which requires that products embodying a waived invention or produced through this use of a waived invention be manufactured substantially in the United States unless the participant can show to the satisfaction of DOE that it is not commercially feasible to do so. In the event DOE agrees to foreign manufacture, there will be a requirement that the Government's support of the technology be recognized in some appropriate manner, e.g., recoupment of the Government's investment, etc. Praxair has also agreed to make the above conditions binding on any assignee or licensee or any entity otherwise acquiring rights to any waived invention, including subsequent assignees or licensees. Additionally, should Praxair or other entity receiving rights in any waived invention undergo a change in ownership amounting to a controlling interest, the waiver, assignment, license or other transfer of rights in the waived invention is suspended until approved in writing by DOE.

The grant of this waiver is not anticipated to result in any adverse effects on competition or the public health, safety and welfare. Praxair is one of five major worldwide industrial gas suppliers. Each firm has development programs in synthesis gas production. Additionally, many large petrochemical companies are also developing their own synthesis gas programs.

Considering the foregoing, and in view of the statutory objectives to be attained and the factors to be considered, it has been determined that this advance waiver of patent rights will best serve the interest of the United States and the general public. Subject to Praxair providing at least thirty one percent (31%) cost sharing, in aggregate over the term of this agreement, it is recommended that the waiver be granted.



Mark P. Dvorscak
Assistant Chief Counsel
Office of Intellectual Property Law

Date: Feb 23, 2001

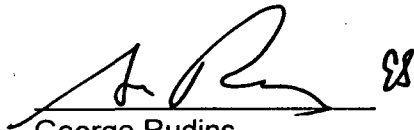


Joy Alwan
Patent Attorney
Office of Intellectual Property Law

Date: 23 Feb 01

Based on the foregoing Statement of Consideration, it is determined that the interest of the United States and the general public will be best served by a waiver of the United States and foreign rights as set forth therein, and therefore the waiver is granted. This waiver shall not affect any waiver previously granted.

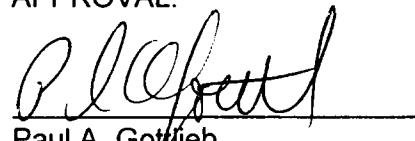
CONCURRENCE:

A handwritten signature in black ink, appearing to be 'G. Rudins', followed by a small 'ES' mark.

George Rudins
Deputy Assistant Secretary
Coal and Power Systems
FE-20 4G-036 FORS

Date: 5/11/01

APPROVAL:

A handwritten signature in black ink, appearing to be 'P. A. Gottlieb'.

Paul A. Gottlieb
Assistant General Counsel
for Technology Transfer and
Intellectual Property

Date: 5-2-01